UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8
1595 Wynkoop Street
Denver, Colorado 80202-1129
Phone 800-227-8917
www.epa.gov/region8

Via electronic mail

June 28, 2017

Ref: 8EPR-SR

Mr. David J. Abranovic, P.E.
Project Coordinator
ERM West, Inc.
7272 East Indian School Rd, Suite 108
Scottsdale, AZ 85251

Re: US Magnesium NPL Site – Preliminary Remedial Action Objectives and ARARs (Applicable, Relevant and Appropriate Requirements) for Screening-FS

Dear Mr. Abranovic:

With your receipt of the subject materials ERM can begin work on the Screening Feasibility Study called for under the AOC-SOW for RIFS.

When US Magnesium approached EPA about undertaking a treatability study for a salt-cap remedial alternative, we discussed the need to also develop the Screening Feasibility Study addressed under Sections 6.1-6.2 of the AOC-SOW. With Phase 1 remedial investigations completed, human health and ecological risk assessment work underway, and a salt-cap treatability study progressing, the Screening-FS can commence.

As lead-up to the Screening-FS, EPA and ERM developed preliminary remedial action objectives (EPA October 7, 2015, ERM February 16, 2016, and EPA May 2, 2016 (Enclosure 1)). ERM also included in its February 16, 2016 letter a list of 'draft provisionary Federal and State ARARs'.

Your February 16 letter concluded with:

> "ERM has also initiated preparation of the draft technology screening technical memorandum required by Section 6.2 of the AOC and referenced in your October 7, 2015 letter, however the draft of this document cannot be completed until the PRAOs and ARARs are finalized."

Pursuant to 40 CFR § 300.430(d)(3), attached (Enclosure 2) is the list of Draft ARARs prepared by EPA and UDEQ. With ERM already having initiated work on the technology screening tech-memo, you should easily meet the timeline laid out in the Feasibility Study Schedule of your June 15, 2017 Monthly Progress Report. Please contact me if you have any questions regarding this endeavor.

Sincerely,

Ken Wangerud
Remedial Project Manager
Superfund Remedial Program

Enclosure 1 – PRAOs (EPA, May 2016)
Enclosure 2 – Draft ARARs (EPA, June 2017)

cc: Rob Hartman, US Magnesium
Michael DeDen, MWH-Stantec
Michael Storck, UDEQ-DERR
Sandra Allen, UDEQ-AG
Daniel Hall, UDEQ-DWQ
Brad Maulding, UDEQ-DWMRC
David Duster, 8EPA-RCRA Technical Enforcement
Van Housman, EPA-OECA
Steve Wharton, 8EPA EPR-SR
Steven Moores, 8EPA-Enf/Legal
Andy Lensink, 8EPA-Enf/Legal
Alan Jones, Utah BLM – West Desert District
(all via electronic mail)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8
1595 Wynkoop Street
Denver, Colorado 80202-1129
Phone 800-227-8917
www.epa.gov/region8

May 2, 2016

Ref: 8EPR-SR

Mr. David J. Abranovic, P.E.
Project Coordinator
ERM West, Inc.
7272 East Indian School Rd., Suite 108
Scottsdale, AZS 85251

Re: EPA Response to ERM Comments on OU1 Preliminary Remedial Action Objectives for Feasibility Study Screening for US Magnesium NPL Site

Dear Mr. Abranovic:

The U.S. Environmental Protection Agency (EPA), in consultation with the Utah Department of Environmental Quality (UDEQ), has reviewed your letter of February 16, 2016, that provides comments on the draft PRAOs prepared by the EPA. Except as noted below, the Agencies accept your suggested revisions. In keeping with the format of ERM's letter, the original text by the EPA is in black, ERM's comments and suggested changes are in *green*, and the EPA's newly-modified and current PRAOs are shown in blue. For convenience, the current PRAOs are listed in Attachment 1.

1. RELEASE OF ACID WATER

Original EPA text:

The remedial action objective for the US Magnesium NPL Site is to reduce or eliminate exposures of humans and ecological receptors to contaminated media in locations that exceed risk-based concentrations, including:

- exposures to solid media (soils, sediments and solid wastes) through ingestion, inhalation, dermal contact, and the food chain;
- exposures to acids and other site-related contaminants in surface waters through ingestion and dermal contact pathways.

More specifically, the EPA and UDEQ have developed the following preliminary remedial action objectives (PRAOs) for OU1:

- Eliminate acid waters that pose risk to human health and the environment.

ERM commented:

The elimination of exposures to acid in surface water is not an appropriate PRAO for the Feasibility Study. Low pH surface waters are currently and will continue to be generated as part of ongoing US Magnesium operations and will be managed as appropriate according to all applicable State and Federal waste management regulations. Based on

the human health survey conducted in 2014, there isn't any ingestion exposure pathway of surface waters for human receptors (i.e. dermal contact exposures only). Given that US Magnesium is an operating facility and will continue to operate in the future, ERM suggests adding the following general PRAOs:

- *Ensure ongoing use of the PRI Areas for US Magnesium operations as necessary.*
- *Eliminate unacceptable risk to human health and the environment that could result from contact with acid waters.*

Agency response:

The Agencies agree that the PRAO is not to eliminate the release of acid water, but to minimize the risks that may be associated with human or ecological exposure to acid waters. In that regard, ERM's first general PRAO, above, is not necessary, while the second bullet is an appropriate correction to the EPA's specific PRAO. In the future, if acid waters generated by plant operations are neutralized before release into the environment, the PRAO would largely be addressed. If acid water releases continue, then other strategies for minimizing potential human and ecological risks would need consideration.

2. RELEASE OF TOXIC WASTES

Original EPA text:

Eliminate releases of toxic wastes that pose risk to human health and the environment.

ERM commented:

Suggest rewording this PRAO as follows:

- *Eliminate the migration of contaminants from site media that pose unacceptable levels of risk to human health and the environment.*

Agency response:

The Agencies agree that the PRAO is not to eliminate the release of toxic wastes, but to ensure that toxic wastes that are generated by plant operations do not result in unacceptable exposures of humans or ecological receptors. ERM's suggested revision is useful, but only addresses exposures associated with migration from the site of waste disposal. The PRAO needs to address exposures both at the site of disposal, as well as exposure points that might result from migration.

Accordingly, EPA has made the following revision of this PRAO:

- Eliminate or minimize exposures to site-related toxic wastes that are of potential health concern to humans or ecological receptors. This includes exposures both at the site of waste disposal as well as exposures that might result from the migration of toxic wastes in the environment.

Original EPA text:

- Eliminate risks from contaminated foods to wildlife species that utilize the Great Salt Lake and surrounding habitats.

ERM commented: *Suggest rewording this PRAO as follows:*

- *Prevent impacts to biota from ingestion/direct contact with contaminants causing toxicity or impacts from bioaccumulation through the food chain to human and ecological receptors.*

Agency response: Revision is accepted.

Original EPA text:

- Eliminate by treatment, removal/consolidation, or effective in-place containment and isolation, unacceptable risk posed to human- and eco- receptors in contact with contaminated solid-waste, soils, sediment, and water.

ERM commented: *Suggest rewording this PRAO as follows:*

- *Eliminate by treatment, removal/consolidation, or effective in-place containment and isolation, unacceptable risk to human- and eco-receptors that could contact contaminated solid waste, soils, sediment, and water.*

Agency response: Revision is accepted.

Original EPA text:

- Protect groundwater resources from adverse degradation and limitations on future use.

ERM commented:

Site groundwater is designated as Class IV under Utah Administrative Code (UAC) R317-6. The protection level required for Class IV groundwater is discretionary and must protect human health and the environment. Class IV groundwater by definition is not a suitable drinking water source and therefore ingestion is an incomplete exposure pathway. The only potential complete exposure pathway to site groundwater is direct contact with surface expressions (i.e. springs and seeps). ERM therefore suggests that this PRAO be reworded as follows to ensure the protection level required by R317-6 is achieved:

- *Prevent groundwater degradation and releases that would result in surface waters exceeding risk-based concentrations for human and ecological receptors.*

Agency response:

The Agencies understand and accept that Class IV groundwater is an improbable source of human drinking water, and that, under current site conditions, the primary reason for concern over groundwater contamination is exposure of ecological receptors to groundwater that is, or may become, expressed at the surface. However, the current status (nature and extent) and the potential rate of changes (fate and transport) for the groundwater system must be understood as it pertains to a future potential source of drinking water. Therefore, prevention of groundwater degradation is an important PRAO that must be maintained.

Lastly, the EPA appreciates your submittal of Preliminary Provisional ARARs. The agencies are continuing review of that material, but in the meantime, as discussed, are providing you with the updated PRAOs for your use in preparing the draft Screening FS.

Sincerely,

Ken Wangerud
Remedial Project Manager
Superfund Remedial Program

Enclosure: Preliminary RAOs for RIFS (April 2016)
cc: Michael Storck, UDEQ-DERR

Preliminary Remedial Action Objectives for the Remedial Investigation/Feasibility Study

US Magnesium NPL Site

EPA-UDEQ, April 2016

1. Release of Acid Water

A. Eliminate unacceptable risk to human health and the environment that could result from contact with acid waters.

2. Release of Toxic Wastes

A. Eliminate or minimize exposures to site-related toxic wastes that are of potential health concern to humans or ecological receptors. This includes exposures both at the site of waste disposal as well as exposures that might result from the migration of toxic wastes in the environment.

B. Prevent impacts to biota from ingestion/direct contact with contaminants causing toxicity or impacts from bioaccumulation through the food chain to human and ecological receptors.

C. Eliminate by treatment, removal/consolidation, or effective in-place containment and isolation, unacceptable risk to human- and eco-receptors that could contact contaminated solid waste, soils, sediment, and water.

D. Prevent groundwater degradation and releases that would result in surface waters exceeding risk-based concentrations for human and ecological receptors.

TABLE OF CONTENTS

ATTACHMENTS

TABLES

ACRONYMS/ABBREVIATIONS

§	Section
ACL	Alternate concentration limit
ARAR	applicable or relevant and appropriate requirement
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	*Code of Federal Regulations*
COC	Chemical of concern
COEC	Chemical of ecological concern
EPA	United States Environmental Protection Agency
MCL	maximum contaminant level
MCLG	maximum contaminant level goal
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NPL	National Priorities List
OSWER	Office of Solid Waste and Emergency Response
PCB	Polychlorinated biphenyl
R	Rule
RCRA	Resource Conservation and Recovery Act
ROD	record of decision
SDWA	Safe Drinking Water Act
TBC	to be considered
TDS	Total dissolved solids
TSCA	Toxic Substances Control Act
UAC	Utah Administrative Code
UDEQ	Utah Department of Environmental Quality
U.S.C.	United States Code

SECTION A1
INTRODUCTION

This appendix identifies and evaluates potential federal and State of Utah applicable or relevant and appropriate requirements (ARARs) for the US Magnesium National Priorities List (NPL) Site. The US Magnesium NPL Site is located in Tooele County, Utah, and was placed on the NPL in November 2009.

This evaluation includes an initial determination of whether the potential ARARs actually qualify as ARARs and a comparison for stringency between the federal and State regulations to identify the controlling ARARs. The identification of ARARs is an iterative process. The final determination of ARARs will be made by the US Environmental Protection Agency (EPA) in the record of decision (ROD).

Pursuant to Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section (§) 121(d), remedial actions must attain standards, requirements, criteria, or limitations that are determined to be legally applicable or relevant and appropriate, and which protect human health and the environment, unless the response action is taken and documented pursuant to CERCLA Section 121(d)(4).

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) at 40 Code of Federal Regulations (CFR) § 300.5 defines applicable requirements as "those cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under federal environmental or state environmental or facility siting laws that specifically address a hazardous substance, pollutant, contaminant, remedial action, location or other circumstance found at a CERCLA site…" The NCP at 40 CFR § 300.5 defines relevant and appropriate requirements as "those cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under federal environmental or state environmental or facility siting laws that, while not "applicable" to a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance at a CERCLA site, address problems or situations *sufficiently similar to those encountered at the CERCLA site and that their use is well suited to the particular site*…" (emphasis added).

Compliance with ARARs requires compliance only with the substantive requirements contained within the statute or regulation and does not require compliance with procedural requirements, such as permitting. CERCLA § 121(e)(1) states that "No Federal, State, or local permit shall be required for the portion of any removal or remedial action conducted entirely onsite, where such remedial action is selected and carried out in compliance with this section." For any portion of a removal or remedial action that conducted off-site, such as off-site disposal in a permitted landfill, compliance only with applicable requirements is necessary (not relevant and appropriate) and compliance with both substantive and procedural components is required.

The US EPA has identified the potential federal ARARs, and has worked collaboratively with the State of Utah Department of Environmental Quality (UDEQ) to identify potential State ARARs. In order for a state requirement, including and applicable state requirement, to be identified as a potential state ARAR, the requirement must be more stringent than the federal ARAR.

ARARs are generally divided into three categories: chemical-, location-, and action-specific requirements. These categories of ARARs are presented in the sections below and are included in chemical-, location-, and action-specific ARARs tables at the end of this Appendix. If a requirement was determined not to be an ARAR, the text presents a justification as to why such a determination was made. Requirements determined not to be ARARs are not included in the ARARs tables included at the end of this appendix.

General Approach to the Resource Conservation and Recovery Act

The Resource Conservation and Recovery Act (RCRA) was passed in 1976 to protect human health and the environment, to reduce waste, and to eliminate the generation of hazardous waste as expeditiously as possible. The RCRA regulations comprising the management system are of two types: general standards that govern topic, such as groundwater protection, closure, post-closure care requirements for hazardous waste facilities, and specific standards that regulate the installation, operation, inspection, and closure of hazardous waste management units.

For CERCLA actions that involve treatment, storage, or disposal of RCRA hazardous waste after July 26, 1982, the RCRA regulations will generally be applicable. If waste was treated, stored, or disposed of at the site before July 26, 1982, the RCRA regulations would not be applicable, but would be evaluated for relevance and appropriateness (EPA 1988).

In general, RCRA will be applicable if the following conditions are met:

(1) The waste is a listed or characteristic waste under RCRA; and

(2) The waste was treated, stored, or disposed of after the effective date of the RCRA requirement; or

(3) The activity at the CERCLA site constitutes treatment, storage, or disposal as defined by RCRA (EPA 1988).

Mining waste generated during the extraction, beneficiation, and processing of minerals has been excluded from regulation under RCRA Subtitle C (the hazardous waste regulations). Twenty specific mineral processing wastes are categorized by EPA as “special wastes” and have been excluded from RCRA regulation under the Bevill Amendment.

Some of the waste generated at the US Magnesium facility may be exempt from the definition of hazardous waste under the authority of the Bevill Amendment; however, not all of the waste generated at the facility is exempt. If RCRA listed waste or characteristic waste was discharged, released or disposed of to the environment from the facility and will be addressed by a CERCLA remedial action, RCRA regulations will be a source of potential ARARs. Such potential ARARs could include closing an area with RCRA waste left in place or otherwise managing the waste.

State of Utah Hazardous Waste Program

In 1984, the State of Utah has received authorization from the US EPA to administer its hazardous waste program. Since that time, the State has received authorization to administer additional hazardous waste regulations. The Utah hazardous waste regulations will be evaluated as potential federal ARARs because it is a federally-authorized program. The preamble to the NCP indicates that state regulations that are components of federally authorized or delegated state program are evaluated as federal ARARs.

To the extent that the Utah hazardous waste regulations are stricter or broader in scope than the federal RCRA program, the Utah hazardous waste regulations will be evaluated as potential State ARARs.

SECTION A2
CHEMICAL-SPECIFIC ARARS

Chemical-specific ARARs are generally health- or risk-based numerical values, narrative standards, or methodologies applied to site-specific conditions that result in the establishment of a cleanup level. These values establish the acceptable amount or concentration of a chemical that may be found in, or discharged to, the ambient environment. They can define the cleanup goal when they set an acceptable level with respect to site-specific factors (EPA 1988).

This section presents the potential ARARs that identify numerical values for groundwater, surface water, and soil for the US Magnesium NPL Site. Potential federal and State chemical-specific ARARs are also summarized in Tables A-1 and A-2, respectively, at the end of this Appendix.

A2.1 DISCUSSION OF ARARS BY MEDIUM

The following subsections provide a detailed discussion of potential federal and State ARARs for groundwater, surface water, and soil.

A2.1.1 Potential Groundwater ARARs

The key issue for identifying potential groundwater ARARs is whether the groundwater at the site can be classified as a source of drinking water. In 1997, US EPA established a policy of deferring to state determinations of current and future groundwater uses when that determination is based on an EPA-endorsed comprehensive state groundwater protection program (EPA 1997, 2009). The State of Utah has an EPA-endorsed comprehensive groundwater protection program endorsed by EPA in the Performance Partnership Agreement, a multi-year agreement that was recently renewed through September 30, 2017 (UDEQ and EPA 2016). Therefore, the final determination of groundwater classification at the US Magnesium NPL Site will be based on the State of Utah groundwater classification guidelines.

The groundwater at the US Magnesium NPL Site does not appear to be a current source of drinking water. Once the factual data on the quality and quantity of groundwater at and impacted by the US Magnesium NPL Site and the location of the nearest drinking water wells has been collected, the US EPA and UDEQ will make a determination regarding the classification of the groundwater.

In addition, other beneficial uses of the US Magnesium NPL Site groundwater will be considered, including the discharge of groundwater to surface water, when determining preliminary remediation goals. These beneficial uses are discussed below.

A2.1.1.1 POTENTIAL FEDERAL GROUNDWATER ARARS

Safe Drinking Water Act

The Safe Drinking Water Act (SDWA) requires the US EPA to establish regulations to protect human health from contaminants in drinking water. US EPA has developed two sets of drinking water standards, primary and secondary standards. Primary standards are chemical-specific standards, known as maximum contaminant levels (MCL). MCLs are set as close as feasible to the maximum contaminant level goals (MCLG), which are purely health-based goals. Secondary drinking water standards consist of limits used to regulate the aesthetic quality of water and are not enforceable at the Federal level (EPA 1988).

MCLs are applicable standards for water provided directly to 25 or more people or 15 or more service connections and are applicable "at the tap" of the user. MCLs are also relevant and appropriate in-situ cleanup standards for groundwater that is or may be used for drinking water. In addition, non-zero MCLGs are relevant and appropriate requirements for groundwater that is or may be used for drinking water.

MCLs and non-zero MCLGs are potential chemical-specific federal ARARs for determining groundwater remediation goals if groundwater at the US Magnesium NPL Site is determined to be a current or potential future source of drinking water pursuant to the State classification regulations. Specific MCL and non-zero MCLG remediation goals would be determined based on chemicals of concern (COC) identified for groundwater.

Conversely, MCLs and non-zero MCLGs are not potential federal ARARs and are not used to determine groundwater remediation goals if groundwater at the US Magnesium NPL Site is determined not to be a current or potential future source of drinking water pursuant to the State classification regulations.

Investigation into the classification of groundwater at and impacted by the US Magnesium NPL Site is ongoing; so final classifications of the groundwater have not been made. Areas of groundwater at and impacted by the US Magnesium NPL Site that may be identified as Class I, II, or III are potential sources of drinking water and MCLs and non-zero MCLGs are potential chemical-specific federal ARARs.

Resource Conservation and Recovery Act

Groundwater Protection Standards

RCRA regulations contain groundwater protection standards, promulgated at Utah Administrative Code (UAC) Rule (R) 315-264-94. RCRA corrective actions are required to meet the groundwater concentrations limits required in R315-264-94. In R315-264-94, groundwater concentration limits are set for hazardous constituents at: (1) the background level of that constituent in the groundwater at the time that limit is specified in the permit; or (2) maximum concentrations for fourteen chemicals set in Table 1; or (3) an alternate limit established by the Director under UAC R315-264-94(b). The Director is allowed to establish an alternate groundwater concentration limit for a hazardous constituent if he finds that the constituent will not pose a substantial present or potential hazard to health or the environment as long as the alternate concentration limit is not exceeded. UAC R315-264-94(b)(1) identifies several factors to be considered in establishing the alternate concentration limit and UAC R315-264-94(c) requires the Director to consider the identification of underground sources of drinking water and exempted aquifer.

UAC R315-264-94 is a potential federal chemical-specific ARAR for determining groundwater remediation goals when RCRA hazardous waste is left in place (for example, in a hazardous waste management unit) or for releases to groundwater from facility units administered or otherwise addressed under RCRA.

Pursuant to UAC R315-264-95, a point of compliance for meeting the groundwater concentration limits may be set. The point of compliance is located at the hydraulically downgradient limit of the waste management area, which may include more than one regulated unit. UAC R315-264-95 is a potential federal ARAR when RCRA hazardous waste is left in place and groundwater concentration limits will not be met throughout the plume.

CERCLA Alternate Concentration Limits

CERCLA § 121 provides authority to use alternate concentration limits (ACL) under certain circumstances. CERCLA ACLs are concentration limits set in groundwater for sites where groundwater discharges to surface water. If established, ACLs replace otherwise applicable groundwater standards. A CERCLA ACL may be established if the point of human exposure is beyond the facility boundary and where there are known and projected points of entry of groundwater into surface water and there will be no statistically significant increase of such constituents from groundwater to surface water at the point of entry or any point where there is reason to believe accumulation of constituents may occur downstream and the remedial action includes enforceable measures that will preclude human exposure to the contaminated groundwater. CERCLA § 121 also contains several site-specific conditions that must be met in order to establish a CERCLA ACL (EPA 2005).

CERCLA § 121 ACL is a potential federal chemical-specific ARAR for determining groundwater remediation goals when groundwater discharges to surface water and the conditions for using an ACL

are met. Groundwater ACLs would be determined based on COCs identified for groundwater and surface water.

A2.1.1.2 POTENTIAL STATE GROUNDWATER ARARS

The following were evaluated as potential State ARARs for groundwater. UAC R317-6-3 identifies the groundwater classes established by the State. These established classes are as follows:

- Class IA – Pristine Groundwater (TDS less than 500 mg/L and chemical concentrations below groundwater quality standards)
- Class IB – Irreplaceable Groundwater (source of drinking water for a community public drinking water system for which no reliable supply of comparable quality and quantity is available)
- Class IC – Ecologically Important Groundwater (source of groundwater discharge important to the continued existence of wildlife habitat)
- Class II – Drinking Water Quality Groundwater (TDS greater than 500 mg/L and less than 3,000 mg/L and chemical concentrations below groundwater quality standards)
- Class III – Limited Use Groundwater (TDS greater than 3,000 mg/L and less than 10,000 mg/L or one or more contaminants exceed the groundwater quality standards)
- Class IV – Saline Groundwater (TDS greater than 10,000)

Multiple groundwater classifications may be applicable to the groundwater at and affected by discharges or releases from the US Magnesium NPL Site. Groundwater upgradient of the USM facility and possibly in areas under the Site may be identified as Class III. UDEQ, Division of Water Quality, has classified the Principal Valley-Fill Aquifer in Tooele County, Utah, near the US Magnesium NPL Site as Class IV. The classified area does not extend northerly up to the operating area of the Site; however, EPA's current monitoring well information indicates that TDS is high at the Site and groundwater would likely meet the Class IV criteria, if not Class III. Groundwater in the Site area that discharges to surface water would also be classified as Class IC, ecologically important groundwater. The beneficial uses of the surface water include protection for frequent and primary contact recreation, waterfowl, shorebirds, and other water-oriented wildlife, including their necessary food chain. Therefore, the groundwater cannot discharge to surface water at concentrations that impair the beneficial uses of the surface water. Additional RI work is necessary to better classify and characterize the groundwater at the Site.

UAC R317-6-3 is a potential State chemical-specific ARAR for determining the classification of the groundwater under the US Magnesium NPL Site according to State criteria.

Groundwater Quality Standards

The State groundwater quality protection is promulgated at UAC R317-6. The State has promulgated numerical groundwater quality standards for 90 chemicals for the protection of groundwater quality at UAC R317-6-2. Most of the numerical groundwater quality standards are the same as primary drinking water standards with few exceptions. Pursuant to UAC R317-6-2.2, a groundwater quality standard may be established by the Director for chemicals that do not have a groundwater quality standard at a level that will protect public health and the environment.

UAC R317-6-6.15 applies to corrective actions when a person discharges or may discharge pollutants into groundwater or places waste in a location where there is probable cause to believe the waste will cause pollution of groundwater. UAC R317-6-6.15(F) requires corrective actions to attain the groundwater quality standards or alternate corrective action concentration limits (established under UAC R317-6-6.15[G]) for contaminants with specific level. If no groundwater quality standard has been established, a corrective action plan may propose a groundwater concentration limit to be approved by the Director considering the US EPA MCLGs, health advisories, risk-based levels, or standards established by other regulatory agencies.

Pursuant to UAC R317-6-6.15(G), an alternate corrective action concentration limit may be established. A higher concentration may be established based on using the best available technology, protection of human health and the environment, the potential for release and migration, concentrations remaining after the corrective action, and other information. A lower concentration may be established based on the protection of human health or the environment. Costs may be considered when setting an alternate concentration limit.

UAC R317-6-2 is a potential State ARAR. Based on data collected during the RI, groundwater at the Site may be identified as either Class III or Class IV by UDEQ.

UAC R317-6-6.15(F) and (G) are potential State chemical-specific ARARs for determining alternate corrective action limits as groundwater remediation goals.

UDEQ promulgated groundwater protection levels in UAC R317-6-4. These groundwater protection levels contain numerical standards (frequently referencing the groundwater quality standards) applicable to each of the groundwater classes. Under UAC R317-6-4.7, protection levels for Class IV groundwater will be established to protect human health and the environment. UAC R317-6-6.15, Corrective Action, states “It is the intent of the Board that the provisions of these rules should be considered when making decisions under any state or federal superfund action; however, the protection levels are not intended to be considered as applicable, relevant or appropriate clean-up standards under such other regulatory programs.”. As a result, UAC R317-6-4 is not a potential State chemical-specific ARAR for determining groundwater remediation goals.

Monitoring and Water Quality: Drinking Water Standards

UDEQ has promulgated primary and secondary drinking water standards for public water systems in UAC R309-200. Primary drinking water standards are applicable requirements for all public drinking water systems. Secondary drinking water standards are recommended levels in order to avoid consumer complaint.

As discussed above with primary MCLs established under the Federal Safe Drinking Water Act, the State primary drinking water standards are not applicable to in situ groundwater. The State primary drinking water standards may be relevant and appropriate to in situ groundwater that is a current or potential future source of drinking water. Investigation into the classification of groundwater at and impacted by the US Magnesium NPL site is ongoing; so final identification of the groundwater classifications have not been made. Areas of groundwater at and impacted by the US Magnesium NPL Site that are identified as Class I, II, or III are potential sources of drinking water. As a result, State primary drinking water standards are potential chemical-specific ARARs to the extent they are more stringent than the federal MCLs and non-zero MCLGs for the specific chemicals of concern identified for the groundwater at the US Magnesium NPL Site. The State secondary MCLs are non-enforceable guidelines and so are not potential chemical-specific ARARs.

Corrective Action Cleanup Standards Policy

The State has promulgated a regulatory program for responding to the release of regulated substances, hazardous material, and hazardous substances at CERCLA facilities in Utah. This regulatory program is specifically applicable to CERCLA facilities in Utah and may be more directly related to the cleanup at the US Magnesium NPL Site than other corrective action programs established under the UAC (for example, the corrective action requirements of the groundwater quality protection regulations).

This program contains cleanup standards for water-related corrective action at UAC R311-211-5. The cleanup standards for groundwater are identified as MCLs or other applicable water classification standards. UAC R311-211-5(b) allows cleanup levels below MCLs on a case-by-case basis, taking into account the cleanup standards evaluation criteria contained in UAC R311-211-3 and the prevention of further degradation contained in UAC R311-211-4. Factors included for consideration in UAC R311-211-3 are: impact or potential impact of the contamination on public health; impact or potential impact of contamination on the environment; economic considerations and cost effectiveness of cleanup options; and available technology. UAC R311-211-5(c) allows cleanup levels above MCLs or other applicable water quality standards if it is determined that applicable minimum standards cannot reasonably be achieved using UAC R311-211-3 and R311-211-4 and the following factors: the quantity of materials released; the mobility, persistence, and toxicity of materials released; exposure pathways; extent of contamination and relationship to present and potential surface and groundwater locations and uses; type and levels of background contamination; and other relevant standards.

UAC R311-211-3 through R311-211-5 are potential State chemical-specific ARARs for determining groundwater remediation goals.

Cleanup Action and Risk-Based Closure Standards

The State has promulgated requirements at UAC R315-101 for risk-based cleanup and closure for which remediation or removal of hazardous constituents will not be achieved. The regulations are applicable to any responsible party involved in management of a site contaminated with hazardous waste or hazardous constituents.

The authorizing State law is the Solid and Hazardous Waste Act at Title 19 of the Utah Code, Chapter 6. Pursuant to UAC R315-101-6, sites can be closed with no further action if carcinogenic risk is below $1x10^{-6}$, non-cancer hazards are less than or equal to 1, and ecological effects are "insignificant." The regulation allows management of risks at a site when carcinogenic risks are less than $1x10^{-4}$, non-cancer hazards are less than or equal to one, and ecological effects may be "significant." The terms "insignificant" and "significant" are not defined in the regulations. The regulation requires corrective action procedures if carcinogenic risk is greater than or equal to $1x10^{-4}$, non-cancer hazards are greater than 1, or action is necessary to mitigate ecological effects. The regulation does not prescribe cleanup levels, so it is not a potential State chemical-specific ARAR. It does prescribe actions, so it will be evaluated as a potential action-specific ARAR.

A2.1.2 Potential Surface Water ARARs

The US Magnesium NPL Site contains natural and man-made surface water bodies. Therefore, surface water criteria were reviewed to determine if any were potential ARARs. Also, concentrations of COCs in groundwater cannot discharge to surface water at concentrations that exceed applicable surface water criteria. Surface water criteria are not directly applicable to groundwater; however, surface water criteria may be relevant and appropriate criteria for groundwater depending on the circumstances of the discharge of the groundwater to surface water.

Surface water criteria may be action-specific ARARs if a remedial alternative evaluated to address releases of CERCLA hazardous substances includes the point source discharge to surface water. In such case, the surface water criteria and requirements will be evaluated and identified as potential action-specific ARARs.

A2.1.2.1 POTENTIAL FEDERAL SURFACE WATER ARARS

Clean Water Act Ambient Water Quality Criteria under §§ 303 and 304

CERCLA§ 121(d)(2)(A) requires remedial actions attain water quality criteria established under Clean Water Act §§ 303 and 304 where such goals or criteria are relevant and appropriate under the circumstances of the release or threatened release.

Federal water quality standards, referred to as the National Toxics Rule, were promulgated pursuant to Clean Water Act § 303 and are contained in 40 CFR Part 131, Subpart D. These standards present chemical-specific, numeric criteria for priority toxic pollutants for 14 states and territories that had not complied with Clean Water Act requirements to promulgate such water quality standards. The National Toxics Rule surface water criteria were established at levels protective of freshwater and saltwater aquatic life and human health (consuming fish/shellfish and water).

If a state had complied with the Clean Water Act requirement to establish surface water quality standards, then the federal National Toxics Rule did not affect that particular state. Utah appears to have promulgated appropriate State surface water quality standards, and was therefore, unaffected by the promulgation of the National Toxics Rule. Therefore, the federal water quality standards promulgated in 40 CFR Part 131 are not potential federal chemical-specific ARARs.

The national recommended water quality criteria were published pursuant to Clean Water Act § 304. The national recommended water quality criteria were published for approximately 150 pollutants and also represent chemical-specific, numeric criteria. These criteria provide guidance to states for establishing water quality standards. The national recommended water quality criteria contain criteria for the protection of freshwater and saltwater aquatic life and human health (consuming fish/shellfish and water and incidental consumption of water related to recreational activities).

The national recommended water quality criteria are potential federal chemical-specific ARARs for surface water at the site that contains aquatic organisms and the potential for humans to consume the aquatic life. In addition, since groundwater discharges to surface water at the site, chemicals in groundwater cannot discharge to surface water at concentrations that would cause the surface water to exceed surface water criteria. Therefore, the national recommended water quality criteria are relevant and appropriate to determining acceptable concentrations in groundwater that discharges to surface water that has aquatic organisms and/or human health exposure.

A2.1.2.2 POTENTIAL STATE SURFACE WATER ARARS

The State has promulgated water quality standards applicable to all waters of the State and has adopted a surface water classification system at UAC R317-1 and R317-2. Pursuant to UAC R317-2-6, the classes of surface water are:

- Class 1 – Protected for use as a raw water source for domestic water systems
- Class 1C – Protected for domestic purposes with prior treatment
- Class 2 – Protected for recreational use and aesthetics
- Class 2A – Protected for frequent primary contact recreating where there is a high likelihood of ingestion of water or bodily contact with the water
- Class 2B – Protected for infrequent primary contact recreation where there is a low likelihood of ingestion of water or a low degree of bodily contact with the water

- Class 3 – Protected for use by aquatic wildlife
- Class 3A – Protected for cold water species of game fish and other aquatic life
- Class 3B – Protection for warm water species of game fish and other aquatic life
- Class 3C – Protection for nongame fish and other aquatic life
- Class 3D – Protected for waterfowl, shore birds, and other water oriented wildlife
- Class 3E – Severely habitat-limited waters (narrative standards will be applied to protect these waters)
- Class 4 – Protected for agricultural uses including irrigation of crops and stock watering
- Class 5 – The Great Salt Lake
- Class 5A – Gilbert Bay
- Class 5B – Gunnison Bay
- Class 5C – Bear River Bay
- Class 5D – Farmington Bay
- Class 5E – Transitional waters along the shoreline

The classifications of surface water at and impacted by releases from the US Magnesium NPL Site include: UAC R317-2-13.10, which designates all drainage canals and ditches statewide as Class 2B or 3E (for the Skull Valley Drainage Ditch); UAC R317-2-13.11, which designates Gilbert Bay as Class 5A for open water below 4,280 feet and 5E for transitional waters along the shoreline; and UAC R317-2-13.13, which presumptively designates all undesignated waters as Class 2B and Class 3D (for surface water on or impacted by the site that has not been designated).

UAC R317-2-6 and UAC R317-2-13.10, R317-2-13.11, R317-2-13.13 are potential State ARARs for determining the classification of surface water on or impacted by the US Magnesium NPL Site.

UDEQ promulgated narrative and numerical surface water standards applicable to the classes of surface water. The narrative standard is contained in UAC R317-2-7.2 and prohibits the discharge or placement of any waste or other substance that may become offensive or cause conditions which produce undesirable aquatic life or result in undesirable physiological responses in desirable resident fish or aquatic life, or undesirable human health effects. The numerical standards are contained in UAC R317-2-14. The numerical standards are promulgated for aquatic, water oriented wildlife, human health, and agricultural protection.

UAC R317-2-7.2 and R317-2-14 are potential State chemical-specific ARARs for surface water at the site. In addition, since groundwater discharges to surface water at the site, chemicals in groundwater cannot discharge to surface water at concentrations that would cause the surface water to exceed applicable surface water criteria. Therefore, UAC R317-2-7.2 and R317-2-14 are relevant and appropriate to

determining acceptable concentrations in groundwater that discharges to surface water that has aquatic organisms, human health, or agricultural exposure.

Corrective Action Cleanup Standards Policy

The State has promulgated a regulatory program for responding to the release of regulated substances, hazardous material, and hazardous substances at CERCLA facilities in Utah. This regulatory program is specifically applicable to CERCLA facilities in Utah and may be more directly related to the cleanup at the US Magnesium NPL Site than other corrective action programs established under the UAC. This program contains cleanup standards for water-related corrective action at UAC R311-211-5. The cleanup standards for surface water are identified as MCLs or other applicable water classification standards.

UAC R311-211-5(b) allows cleanup levels below MCLs on a case-by-case basis, taking into account the cleanup standards evaluation criteria contained in UAC R311-211-3 and the prevention of further degradation contained in UAC R311-211-4. Factors included for consideration in UAC R311-211-3 are: impact or potential impact of the contamination on public health; impact or potential impact of contamination on the environment; economic considerations and cost effectiveness of cleanup options; and available technology.

UAC R311-211-5(c) allows cleanup levels above MCLs or other applicable water quality standards if it is determined that applicable minimum standards cannot reasonably be achieved using UAC R311-211-3 and R311-211-4 and the following factors: the quantity of materials released; the mobility, persistence, and toxicity of materials released; exposure pathways; extent of contamination and relationship to present and potential surface and groundwater locations and uses; type and levels of background contamination; and other relevant standards.

UAC R311-211-3 through R311-211-5 are potential State chemical-specific ARARs for determining acceptable surface water concentrations. In addition, these provisions have been identified as potential ARARs for groundwater and may be used to determine groundwater concentrations necessary to meet surface water concentrations.

Cleanup Action and Risk-Based Closure Standards

The State has promulgated requirements for risk-based cleanup and closure for which remediation or removal of hazardous constituents will not be achieved. The regulations are applicable to any responsible party involved in management of a site contaminated with hazardous waste or hazardous constituents.

The authorizing State law is the Solid and Hazardous Waste Act at Title 19 of the Utah Code, Chapter 6.

Pursuant to UAC R315-101-6, sites can be closed with no further action if carcinogenic risk is below $1x10^{-6}$, noncancer hazards are less than or equal to 1, and ecological effects are “insignificant.” The regulation allows management of risks at a site when carcinogenic risks are less than $1x10^{-4}$, noncancer

hazards are less than or equal to one, and ecological effects may be "significant." The terms "insignificant" and "significant" are not defined in the regulations. The regulation requires procedures for corrective action if carcinogenic risk is greater than or equal to $1x10^{-4}$, noncancer hazards are greater than 1, or action is necessary to mitigate ecological effects. The regulation does not prescribe cleanup levels, so it is not a potential State chemical-specific ARAR. It does prescribe actions, so it will be evaluated as a potential action-specific ARAR.

A2.1.3 Potential Soil ARARs

A2.1.3.1 POTENTIAL FEDERAL SOIL ARARS

Toxic Substances Control Act

Polychlorinated biphenyls (PCB) have been detected on the US Magnesium NPL Site and have been detected in bird eggs at or near the site. The Toxic Substances Control Act (TSCA) regulates the storage and disposal of PCBs, including PCB remediation waste at 40 CFR Part 761. In the preamble to US EPA's promulgation of 40 CFR Part 761, the US EPA indicated that it anticipates that Part 761 will be a potential ARAR at sites where PCBs are present and that CERCLA cleanups would typically comply with the substantive requirements of one of the three options provided in § 761.61 (63 Federal Register 35384 at 35407). In the preamble, the US EPA has also stated that Part 761 does not bind other cleanup programs, such as CERCLA or RCRA. As a result, 40 CFR Part 761 is not evaluated as a potentially applicable requirement when PCBs are present; instead, it is evaluated as a potential relevant and appropriate cleanup requirement.

The three options provided under 40 CFR § 761.61 are: (a) self-implementing cleanup option; (b) the performance-based option; and (c) the risk-based option. 40 CFR § 761.61(a)(4)(i) establishes the cleanup levels for bulk PCB remediation waste (including PCB-contaminated soil). These cleanup levels are based on high occupancy or low occupancy use of a site. High and low occupancy are defined in 40 CFR § 761.3. High occupancy is an area where occupancy is 840 hours or more for non-porous surfaces and 335 hours or more for bulk PCB remediation waste. Low occupancy is an area where occupancy is less than 840 hours for non-porous surfaces and less than 335 hours for bulk PCB remediation waste. The cleanup levels for high occupancy are 1 milligram per kilogram (mg/kg) total PCBs for unrestricted, high-occupancy use of a site or 10 mg/kg total PCBs with a cap. The cleanup levels for low occupancy are 25 mg/kg or 50 mg/kg if the site is secured by a fence and marked with a sign. Bulk PCB remediation waste may remain at a site at concentrations up to 100 mg/kg if the site is covered with a cap. The requirements for a cap and deed restrictions for caps are contained in 40 CFR § 761.61(a)(7) and (8). These contain action-specific requirements and would be evaluated as potential action-specific ARARs if alternatives are evaluated that leave concentrations of PCBs in place above 10 mg/kg.

In addition, 40 CFR § 761.61(a)(6) requires a self-implementing cleanup to comply with the cleanup verification requirements of 40 CFR Subpart 0. This part contains action-specific requirements that would be evaluated as potential action-specific ARARs if 40 CFR § 761.61(a)(4)(i) cleanup goals are chosen as PCB remediation goals.

40 CFR § 761.61(b) establishes the performance based disposal requirements. This section allows PCB remediation waste to be disposed of in a high temperature incinerator or in accordance with 40 CFR § 761.79 decontamination standards and procedures.

40 CFR § 761.61(c) contains the risk-based disposal approval. It allows for other methods of sampling, cleanup, and disposal of PCB remediation waste upon US EPA approval.

The PCB remediation waste options at 40 CFR § 761.61(a), (b), and (c) are potential federal chemical-specific ARARs for establishing PCB remediation goals. The cleanup levels established in 40 CFR § 761.61(a)(4)(i) are based on the protection of human health. These goals may not be protective of ecological receptors. The determination of the protectiveness of the potential ARAR at 40 CFR § 761.61(a)(4)(i) will be made once the ecological risk assessment is complete, the chemicals of ecological concern (COEC) are identified, and levels protective of ecological receptors are established. If remediation goals protective of ecological receptors are established for PCBs and if the application of the ecological goals overlap with areas to which human receptors are exposed, 40 CFR § 761.61(a)(4)(i) may be determined not to be a federal ARAR for establishing PCB remediation goals.

A2.1.3.2 POTENTIAL STATE SOIL ARARS

Corrective Action Cleanup Standards Policy

The State has promulgated a regulatory program for responding to the release of regulated substances, hazardous material, and hazardous substances at CERCLA facilities in Utah. This program contains cleanup standards at UAC R311-211-5. The regulation does not provide numerical cleanup standards for soil. Instead, the program uses a narrative standard of “other standards as determined applicable by the Board may be utilized” at UAC R311-211-5(a)(3). No other factors for consideration are listed.

UAC R311-211-5(a)(3) is a potentially relevant and appropriate State chemical-specific ARAR for determining numerical cleanup standards for soil, providing that any standards established by a determination of the State Board on a case-by-case basis or otherwise are protective and/or at least as stringent as federal standards.

Cleanup Action and Risk-Based Closure Standards

The State has promulgated requirements for risk-based cleanup and closure for which remediation or removal of hazardous constituents will not be achieved. The regulations are applicable to any responsible party involved in management of a site contaminated with hazardous waste or hazardous constituents.

The authorizing State law is the Solid and Hazardous Waste Act at Title 19 of the Utah Code, Chapter 6.

Pursuant to UAC R315-101-6, sites can be closed with no further action if carcinogenic risk is below 1x10-6, noncancer hazards are less than or equal to 1, and ecological effects are “insignificant.” The regulation allows management of risks at a site when carcinogenic risks are less than 1x10-4, noncancer

hazards are less than or equal to one, and ecological effects may be "significant." The terms "insignificant" and "significant" are not defined in the regulations. The regulation requires procedures for corrective action if carcinogenic risk is greater than or equal to 1x10-4, noncancer hazards are greater than 1, or action is necessary to mitigate ecological effects. The regulation does not prescribe cleanup levels, so it is not a potential State chemical-specific ARAR. It does prescribe actions, so it will be evaluated as a potential action-specific ARAR.

A2.1.4 Potential Air ARARs

Reserved

SECTION A3
LOCATION-SPECIFIC ARARS

Potential location-specific ARARs are restrictions placed on the concentrations of hazardous substances or on the conduct or activities solely because the activities occur in a protected location. Examples of protected locations include historic places, wetlands, and sensitive ecosystems or habitats (EPA 1988). Many location-specific requirements also have action-specific components or may be triggered by the remedial action. For example, there may be an on-site wetland, but the discharge of dredge and fill requirements are only triggered if the discharge of dredge or fill into the wetland will occur as part of the remedial action. This section will cross-reference the potential action-specific components when necessary.

The US Magnesium NPL Site is on the shores of the Great Salt Lake, a natural resource of significant ecological importance. The lake's shoreline marshes attract large numbers of migratory birds and other wildlife. Fish live in the freshwater marshes and inlets, but cannot live in the lake's salty water. The lake is also used extensively for recreation, including sailing and swimming. Wetlands and floodplain resource requirements and biological resource requirements form the primary location-specific ARARs. At this time, it is believed that no historical places listed or eligible for listing on the National Register of Historic Places or other protected cultural resources are located on the US Magnesium NPL Site based on cultural resource surveys done in conjunction with sampling on the US Bureau of Land Management property adjacent to the site. As a result, cultural resource protection requirements, such as the National Historic Preservation Act, are not identified as potential location-specific ARARs.

A3.1 WETLANDS AND FLOODPLAIN PROTECTION

Jurisdictional wetlands have not been identified on the site because an evaluation of jurisdictional wetlands has not yet been completed. However, because the site is on the shores of the Great Salt Lake, it is likely that wetlands are present on or near the site.

It is also likely that the site is within the 100 year floodplain so requirements affecting floodplains were evaluated as potential applicable requirements.

A3.1.1 Potential Federal ARARs

Clean Water Act § 404 (33 U.S.C. § 1344)

Clean Water Act § 404 prohibits the discharge of dredge or fill material into waters of the US, including adjacent wetlands, without a permit. Both the US EPA and the Army Corps of Engineers have jurisdiction over wetlands. The discharge of dredge or fill material that results in the degradation or destruction of wetlands should be avoided to the extent possible.

Clean Water Act § 404 is a potential federal location-specific ARAR for activities that may result in the deposition of dredge or fill material into wetlands. Activities that could result in the deposition of

dredge and fill materials include capping, construction of structures such as berms or levees, and dredging (EPA 1988). These activities are action-specific components and depend on the actions evaluated in the remedial action alternatives. If remedial action alternatives evaluate the discharge of dredge or fill material into wetlands, Clean Water Act requirements, including mitigation of wetland losses, will be identified as potential action-specific ARARs.

Executive Order 11990

Executive Orders are not promulgated and so are not evaluated as ARARs. However, Executive Orders are evaluated as to be considered (TBC) criteria. Federal Executive Orders are binding on the federal government. Executive Order 11990 requires that federal agencies minimize the destruction, loss, or degradation of wetlands and avoid support of new construction in wetlands if a practicable alternative exists. Portions of the cleanup of the US Magnesium NPL Site are being done under CERCLA authority. CERCLA is a non-delegable federal statute and the US EPA is the lead agency for the US Magnesium NPL Site.

Executive Order 11990 is a TBC for activities that may result in the destruction, loss, or degradation of wetlands. If remedial action alternatives evaluate activities within the wetlands, actions to mitigate the destruction, loss, or degradation of the wetlands must be included.

Rivers and Harbors Act

Rivers and Harbors Act § 10 (33 U.S.C. § 403) prohibits the unauthorized obstruction or alteration of navigable waters of the US. Navigable waters of the US are defined as waters that are subject to the ebb and flow of the tide, shoreward to the mean high water mark, and are presently used to transport interstate commerce (EPA 1988). Examples of activities that result in structures in navigable waters include, installation of pilings, construction of berms, levees, coffer dams, and piers (EPA 1988). The Great Salt Lake is a navigable water of the US.

Rivers and Harbors Act § 10 is a potential federal location-specific ARAR for activities that involve construction of structures in or alteration of the Great Salt Lake. Activities that could result in the construction of structure or in alteration of the Great Salt Lake are action-specific components and depend on the actions evaluated in the remedial action alternatives.

Executive Orders 11988 and 13690

Executive Orders are not promulgated and so are not evaluated as ARARs. However, Executive Orders are evaluated as to be considered (TBC) criteria. Federal Executive Orders are binding on the federal government. Executive Order 11988 requires that federal agencies evaluate the potential effects of actions taken in a floodplain, avoid adverse effects associated with development in a floodplain, and implement acceptable flood proofing and flood protection measures of the construction of new structures or facilities in a floodplain. Executive Order 13690, issued January 30, 2015, amended Executive Order 11988 to extend its guidelines to use a higher vertical flood elevation and

corresponding horizontal floodplain – the 500 year floodplain instead of the 100 year floodplain. Portions of the cleanup of the US Magnesium NPL Site are being done under CERCLA authority. CERCLA is a non-delegable federal statute and the US EPA is the lead agency for the US Magnesium NPL Site.

Executive Orders 11988 and 13690 are TBCs for activities that may occur in the floodplain. If a remedial action alternative evaluates activities within the 500 year floodplain, actions to minimize adverse effects on the floodplain must be included.

Resource Conservation and Recovery Act

In 1984, the State of Utah received authorization from the US EPA to administer its hazardous waste program. Therefore, regulations contained in the State's program are evaluated as potential federal ARARs.

UDEQ has promulgated location standards for hazardous waste treatment, storage, or disposal facilities under UAC R315-264-18. New hazardous waste facilities may not be located within 61 meters (200 feet) of a fault that has had displacement in Holocene time. Facilities located in a 100-year floodplain must be designed, constructed, operated, and maintained to prevent washout unless the owner or operator can demonstrate that it is not necessary based on certain factors.

UAC R315-264-18 is a potential federal location-specific ARAR for new hazardous waste facilities, including temporary soil staging piles and permanent disposal areas. If a remedial action alternative evaluates the construction of a new hazardous waste facility, the facility may not be located within 61 meters of a fault that has had displacement in Holocene time and the facility must be constructed to prevent washout.

A3.2 BIOLOGICAL RESOURCES

Wildlife is abundant on the shores of the Great Salt Lake. The lake's shoreline marshes attract large numbers of migratory birds and other wildlife. Fish live in the freshwater marshes and inlets, but cannot live in the lake's salty water. No threatened or endangered species have been identified on or near the site so the Endangered Species Act was not evaluated as a potential ARAR.

A3.2.1 Potential Federal ARARs

Migratory Bird Treaty Act

The Migratory Bird Treaty Act at 16 U.S.C. § 703 makes it illegal to take, capture, or kill any migratory bird or the parts, nests or eggs of any migratory bird. Migratory birds are present at and near the US Magnesium NPL Site. Therefore, the Migratory Bird Treaty Act § 703 is a potential federal location-specific ARAR. An ecological risk assessment is being completed to evaluate the effect of contamination at the site on ecological receptors, including migratory birds. The ecological risk assessment will determine if a remedial action is necessary to protect migratory birds. In addition, compliance with this

ARAR requires that remedial alternatives include actions to avoid the taking of any migratory bird or the nests or eggs of any migratory birds.

Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act at 16 U.S.C. § 668(a) prohibits the taking of bald eagles, including their parts, nests or eggs. The Act defined "taking" as to pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest, or disturb. The Bald and Golden Eagle Protection Act implementing regulations at 50 CFR § 22.3 further define "disturb" as injury; decrease in productivity by interfering with breeding, feeding, or sheltering; or nest abandonment. Bald eagles are present at and near the US Magnesium NPL Site. Therefore, the Bald and Golden Eagle Protection Act § 668(a) is a potential federal location-specific ARAR. An ecological risk assessment is being completed to evaluate the effect of contamination at the site on ecological receptors, including bald eagles or representative species. The ecological risk assessment will determine if a remedial action is necessary to protect bald eagles. In addition, compliance with this ARAR requires that remedial alternatives include actions to avoid the taking or disturbing of the bald eagle or the nests or eggs of any bald eagle.

A3.2.2 Potential State ARARs

The State of Utah has developed a Wildlife Action Plan that is intended to manage native wildlife species and their habitats, sufficient to prevent the need for additional listings under the Endangered Species Act. The plan addresses wildlife and habitats across the entire State of Utah, including those species on the Utah sensitive species list.

The Wildlife Action Plan is not promulgated, therefore it is not a potential State location-specific ARAR. However, it is identified as a TBC criteria for addressing species on the Utah sensitive species list that are present or potentially present on the US Magnesium NPL Site; that may be effected by the remedial action; and that are not federal threatened or endangered species (which would be protected by the Federal Endangered Species Act). Investigation into the species present at the site is ongoing. Once the determination is made regarding species present at the site, the status of the Wildlife Action Plan as TBC criteria will be determined.

SECTION A4
ACTION-SPECIFIC ARARS

Action-specific ARARs are requirements that are triggered by a remedial action being conducted on site. Action-specific ARARs are technology- or activity-based restrictions or limitation on actions. Action-specific ARARs generally do not determine the remedial alternative; rather they determine how an alternative must be completed (EPA 1988).

Potential action-specific ARARs will be evaluated when the remedial action alternatives are decided.

SECTION A5
REFERENCES

United States Environmental Protection Agency (EPA) 1988. *"Guidelines for Ground-Water Classification Under the EPA Ground-Water Protection Strategy."*

EPA 1988. CERCLA Compliance with other Laws Manual, Draft Guidance. EPA/540/G-89/006, Office of Emergency and Remedial Response, Washington, DC. August.

EPA 1997. "Memorandum: The Role of CSGWPPs in EPA Remediation Programs." Office of Solid Water and Emergency Response (OSWER) Directive 9283.1-09. April 4.

EPA 2005. "Memorandum: Use of Alternate Concentration Limits in Superfund Cleanups." OSWER 9200.4-39. July 19.

EPA 2009. "Memorandum: Summary of Key Existing EPA CERCLA Policies for Groundwater Restoration." OSWER Directive 9283.1-33. June 26.

Utah Department of Environmental Quality and EPA 2016. Performance Partnership Agreement for Fiscal Year 2017. December 5.

ATTACHMENT A1
US EPA ARAR Request Letter to State

ATTACHMENT A2
State of Utah ARAR Response

ATTACHMENT A3
US EPA Response to State ARARs

TABLES

TABLE A-1: POTENTIAL FEDERAL CHEMICAL-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

Feasibility Study, US Magnesium NPL Site, Tooele County, Utah

Requirement	Prerequisite	Citation	Preliminary ARAR Determination	Comments
GROUNDWATER				
Safe Drinking Water Act				
Establishes maximum contaminant levels and maximum contaminant level goals for drinking water to protect human health	Current or potential future source of drinking water	40 CFR Part 141	Relevant and appropriate	MCLs and non-zero MCLGs are potential ARARs for in situ groundwater that is a current or potential future source of drinking water. Groundwater at and impacted by the US Magnesium NPL Site must be classified pursuant to the US EPA Guidelines for Ground-Water Classification Under the EPA Ground-Water Protection Strategy. If the groundwater is classified as Class III groundwater, MCLs and non-zero MCLGs will not be potential ARARs.
Resource Conservation and Recovery Act				
Groundwater protection standards for hazardous waste units. Groundwater concentration limits are set at: (1) background at the time of the permit; (2) maximum concentration limits in Table 1; or (3) an alternate limit.	RCRA hazardous waste facility	UAC R315-264-94	Relevant and appropriate	RCRA groundwater protection standards are relevant and appropriate for determining groundwater concentrations that may be used as groundwater remediation goals when waste is left in place at the US Magnesium NPL Site. If it is determined that the waste left in place or the waste management units are or contain RCRA hazardous waste, then these requirements will be potential applicable ARARs.
A point of compliance for meeting the groundwater concentration limits may be set at the hydraulically downgradient limit of the waste management area.	RCRA hazardous waste facility	UAC R315-264-95	Relevant and appropriate	Groundwater concentration limits must be met at a point of compliance downgradient of the waste management area. If it is determined that the waste management units are of contain RCRA hazardous waste, then these requirements will be potential applicable ARARs.
CERCLA Alternate Concentration Limits				
Alternate concentration limits may be used to set groundwater remediation goals (replacing otherwise applicable groundwater standards) where the	Otherwise applicable groundwater standards, human exposure beyond the	CERCLA § 121	Relevant and appropriate	The CERCLA ACL has been identified as a relevant and appropriate ARAR because it has not yet been determined that there are otherwise applicable groundwater standards or that human exposure to

TABLE 1: POTENTIAL FEDERAL CHEMICAL-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

Feasibility Study, US Magnesium NPL Site, Tooele County, Utah

Requirement	Prerequisite	Citation	Preliminary ARAR Determination	Comments
point of human exposure is beyond the facility boundary and where groundwater discharge to surface water will not statistically increase the discharge of groundwater constituents to surface water.	facility boundary, and no statistically significant increase in constituent discharge from groundwater to surface water.			groundwater is only beyond the facility boundary.
SURFACE WATER				
Clean Water Act				
National recommended water quality criteria published pursuant to Clean Water Act § 304	Surface water that contains fresh or saltwater aquatic life and from which there is human consumption of fish or shell fish	Clean Water Act § 304	Relevant and appropriate	CERCLA § 121 requires that remedial actions attain water quality criteria established under Clean Water Act § 304 where such goals or criteria are relevant and appropriated under the circumstances. The national recommended water quality criteria are published under the authority of Clean Water Act § 304. The criteria are protective of aquatic receptors and human receptors that consume the aquatic receptors. The criteria are applicable to surface water that contains aquatic life. The criteria have been determined to be relevant and appropriate at this time because it has yet to be determined if there are surface water locations at the US Magnesium NPL Site where there are aquatic life. In addition, if it is determined that groundwater discharges to surface water that contains aquatic life, then the national recommended water quality criteria would be relevant and appropriate for establishing groundwater remediation goals for groundwater that may discharge to these surface water locations.
SOIL				
Toxic Substances Control Act				
Regulates PCB remediation waste. There are three cleanup options: (a) self-implementing on-site cleanup and disposal; (b) performance-based	PCBs at concentrations of 50 mg/kg or greater	40 CFR Part 761	Relevant and appropriate	The US EPA has stated that TSCA does not bind other cleanup programs such as CERCLA, so TSCA is not evaluated as a potentially applicable ARAR. The US EPA has also stated that it expects

TABLE 1: POTENTIAL FEDERAL CHEMICAL-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS
Feasibility Study, US Magnesium NPL Site, Tooele County, Utah

Requirement	Prerequisite	Citation	Preliminary ARAR Determination	Comments
disposal using existing approved disposal technologies; and (c) risk-based disposal.				CERCLA cleanups will typically comply with one of the cleanup options under 40 CFR Part 761. Therefore, TSCA is evaluated as a potentially relevant and appropriate ARAR for sites where PCBs are present. PCBs are present at the US Magnesium NPL Site, so TSCA is identified as a potentially relevant and appropriate requirement. The self-implementing cleanup option under 40 CFR Part 761 is the only option that establishes numerical cleanup goals for PCB remediation waste. The cleanup levels are based on high or low occupancy use of a site. High occupancy uses include residential and industrial uses for 335 hours or more per year. The cleanup goals are 1 mg/kg for unrestricted high occupancy use and up to 10 mg/kg for high occupancy use of the PCBs are under a cap. The cleanup goals are 25 mg/kg for low occupancy use of a site and up to 50 mg/kg if secured by a fence and marked with a sign. Up to 100 mg/kg of PCBs may remain on the site if concentrations are covered by a cap. These concentrations are protective of human health and may not be protective of ecological receptors. The determination of the protectiveness of these goals will be made once the ecological risk assessment is complete.

Notes:

§	Section	PCB	Polychlorinated biphenyls
ARAR	Applicable or relevant and appropriate requirement	RCRA	Resource Conservation and Recovery Act
CERCLA	Comprehensive Environmental Response and Liability Act	TSCA	Toxic Substances Control Act
CFR	Code of Federal Regulations	UAC	Utah Administrative Code
MCL	Maximum contaminant level	US EPA	United States Environmental Protection Agency
MCLG	Maximum contaminant level goals		
mg/kg	milligrams per kilogram		
NPL	National Priorities List		

TABLE A-2: POTENTIAL STATE CHEMICAL-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

Feasibility Study, US Magnesium NPL Site, Tooele County, Utah

Requirement	Prerequisite	Citation	Preliminary ARAR Determination	Comments
GROUNDWATER				
Ground Water Classes				
State criteria for the classification of groundwater. Class IV groundwater is saline groundwater (TDS concentrations greater than 10,000 mg/L)	Groundwater	UAC R317-6-3	Applicable	These criteria are applicable state ARARs for determining the classification of groundwater at the US Magnesium NPL Site according to state criteria. UDEQ has classified the groundwater at the site as Class IV groundwater.
Groundwater Quality Standards				
Corrective actions for groundwater must attain groundwater quality standards (same as primary drinking water standards with few exceptions) or an alternate concentration limit established under UAC R317-6-6.15(G). Under UAC R317-6-6.15(G), a higher concentration may be established based on best available technology, protection of human health and the environment, potential for release and migration, and concentrations remaining after corrective action. A lower concentration may be established based on protection of human health and the environment.	Discharge to groundwater or placement of waste is a location where there is probable cause to believe the waste will discharge to groundwater	UAC R317-6-6.15(F) and (G)	Applicable	US Magnesium has discharged pollutants into the groundwater and has placed waste where it has and may continue to enter the groundwater. Since UDEQ has classified the groundwater at the site as Class IV groundwater, a corrective action attaining groundwater quality standards, which are primary drinking water standards with few exceptions, does not appear to be appropriate to the circumstances. However, determining an alternate corrective action limit based on the factors identified in UAC R317-6-6.15(G) does appear to be appropriate to the circumstances.
Corrective Action Cleanup Standards Policy				
Establishes cleanup standards as MCLs or other applicable water classification standards. UAC R311-211-5(b) allows cleanup levels below MCLs on a case-by-case basis. UAC R311-211-5(c) allows cleanup levels above MCLs or other applicable water quality standards, when MCLs cannot reasonably be	Water –related corrective action for the release of regulated substances, hazardous material, and hazardous substances at CERCLA facilities	UAC R311-211-3 through R311-211-5	Applicable	There is a CERCLA action going on at the US Magnesium NPL Site and the cleanup action includes groundwater. These requirements specifically identify CERCLA actions at sites in Utah, and so appear to be more directly related to the circumstances than other state corrective action regulations. UDEQ has classified the groundwater at the site as Class IV groundwater, so attaining MCLs does not appear to be appropriate to the circumstances. However, a

TABLE A-2: POTENTIAL STATE CHEMICAL-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS
Feasibility Study, US Magnesium NPL Site, Tooele County, Utah

Requirement	Prerequisite	Citation	Preliminary ARAR Determination	Comments
achieved, using R311-211-3, R311-211-4, and specified factors.	in Utah			concentration above or below the MCL does appear to be appropriate to the circumstances.
SURFACE WATER				
Surface Water Classes				
State criteria for classification of surface water.	Surface water	UAC R317-2-6 and R317-2-13	Applicable	These criteria are applicable state ARARs for determining the classification of surface water at the US Magnesium NPL Site.
Narrative and numerical surface water quality standards.	Surface water	UAC R317-2-7.2 and R317-2-14	Applicable	These criteria are applicable to surface water. In addition, they are relevant and appropriate for determining acceptable concentrations in groundwater that discharges to surface water.
Corrective Action Cleanup Standards Policy				
Establishes cleanup standards as MCLs or other applicable water classification standards. UAC R311-211-5(b) allows cleanup levels below MCLs on a case-by-case basis. UAC R311-211-5(c) allows cleanup levels above MCLs or other applicable water quality standards, when MCLs cannot reasonably be achieved, based on R311-211-3, R311-211-4, and specified factors.	Water –related corrective action for the release of regulated substances, hazardous material, and hazardous substances at CERCLA facilities in Utah	UAC R311-211-3 through R311-211-5	Applicable	There is a CERCLA action going on at the US Magnesium NPL Site and the cleanup action includes groundwater, which may at least indirectly, include surface water. These requirements specifically identify CERCLA actions at sites in Utah, and so appear to be more directly related to the circumstances than other state corrective action regulations. These requirements can determine acceptable surface water concentrations. In addition, these provisions have been identified as potential groundwater ARARs and may be used to determine groundwater concentrations necessary to meet surface water concentrations.
SOIL				
No potential state chemical-specific ARARs have been identified for soil.				

Notes:

§	Section	R	Rule
ARAR	Applicable or relevant and appropriate requirement	RCRA	Resource Conservation and Recovery Act
CERCLA	Comprehensive Environmental Response and Liability Act	TDS	Total dissolved solids
MCL	Maximum contaminant level	UAC	Utah Administrative Code
NPL	National Priorities List		

TABLE A-3: POTENTIAL FEDERAL LOCATION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

Feasibility Study, US Magnesium NPL Site, Tooele County, Utah

Requirement	Prerequisite	Citation	Preliminary ARAR Determination	Comments
WETLAND AND FLOODPLAIN PROTECTION				
Clean Water Act				
Discharge of dredge or fill material into waters of the US, including adjacent wetlands, without a permit is prohibited.	Discharge of dredge or fill material into waters of the US or adjacent wetlands	Clean Water Act § 404 (33 U.S.C. § 1344)	Applicable	An evaluation of jurisdiction wetlands has not yet been completed at the US Magnesium NPL Site. However, because the site is on the shores of the Great Salt Lake it is likely that wetlands are present on or near the site. If remedial action alternatives include the discharge of dredge or fill material into the wetlands, then actions must be done in compliance with Clean Water Act requirements, including the mitigation requirements for any loss of wetland.
Executive Order 11990				
Federal agencies must minimize the destruction, loss, or degradation of wetlands and avoid support of new construction in wetlands if a practicable alternative exists.	Action by a federal agency in a wetland	Executive Order 11990	TBC	Executive orders are not promulgated and so are not evaluated as potential ARARs. Executive orders are evaluated as potential TBC criteria to guide decisions made by federal agencies. If remedial action alternatives include activities in the wetlands, actions to mitigate the destruction, loss, or degradation of the wetland must be included.
Rivers and Harbors Act				
The unauthorized obstruction or alteration of navigable waters of the US is prohibited.	Traditional navigable waters of the US	33 U.S.C. § 403	Applicable	The Great Salt Lake is a traditional navigable water of the US. If remedial action alternatives include the construction of structures or alteration of the Great Salt Lake, such as construction of berms, levees, or coffer dams, the requirements of Rivers and Harbors Act must be met.
Executive Order 11988				
Federal agencies must evaluated the potential effects of actions taken in a floodplain, avoid adverse effects associated with development in a floodplain, and implement acceptable flood proofing and flood protection	Actions within a floodplain	Executive Order 11988	TBC	Executive orders are not promulgated and so are not evaluated as potential ARARs. Executive orders are evaluated as potential TBC criteria to guide decisions made by federal agencies. The US Magnesium NPL Site appears to be in the 100-year floodplain. If remedial action alternatives include activities or

TABLE A-3: POTENTIAL FEDERAL LOCATION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS
Feasibility Study, US Magnesium NPL Site, Tooele County, Utah

Requirement	Prerequisite	Citation	Preliminary ARAR Determination	Comments
measures for new structures.				construction in the floodplain, actions to avoid adverse effects and to flood proof new construction are required.
Resource Conservation and Recovery Act				
New hazardous waste facilities used to treat, store, or dispose of hazardous waste may not be located with 61 meters (200 feet) of a fault that has had displacement in Holocene time. New hazardous wastes facilities used to treat, store, or dispose of hazardous waste in a floodplain must be designed, constructed, operated, and maintained to prevent washout.	RCRA hazardous waste facility	UAC R315-264-18	Relevant and appropriate	If remedial action alternatives evaluate the construction or modification of a RCRA hazardous waste facility, including temporary soil staging piles, the facility must be located and designed to meet these criteria. These criteria are applicable to RCRA hazardous waste. It is not known at this time if the waste at the US Magnesium NPL Site is RCRA hazardous waste. Therefore, the requirements are identified as potentially relevant and appropriate. If it is determined that the waste is RCRA hazardous waste, the requirements will be applicable. In addition, the requirements may be relevant and appropriate to waste that is similar to a RCRA hazardous waste.
BIOLOGICAL RESOURCES				
Migratory Bird Treaty Act				
It is illegal to take, capture, or kill any migratory bird, their parts, nests or eggs.	Migratory bird area	16 U.S.C. § 703	Applicable	The Great Salt Lake is a significant natural resource for migratory birds, so migratory birds are or may be present at the US Magnesium NPL Site. An ecological risk assessment is being completed that will determine potential risk to migratory birds from contamination at the site. In addition, compliance with this potential ARAR requires that remedial actions avoid the taking of any migratory bird, their parts, nests, or eggs.
Bald and Golden Eagle Protection Act				
The taking, including killing and disturbing, of bald and golden eagles is prohibited.	Bald eagle area	16 U.S.C. § 668(a)	Applicable	Bald eagles are or may be present at the US Magnesium NPL Site. An ecological risk assessment is being completed that will determine potential risk to bald eagles. In addition, compliance with this potential ARAR requires that remedial actions avoid the taking, killing, or disturbing of bald eagles, their parts, nests, or eggs.

TABLE A-3: POTENTIAL FEDERAL LOCATION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS
Feasibility Study, US Magnesium NPL Site, Tooele County, Utah

TABLE A-3: POTENTIAL FEDERAL LOCATION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS
Feasibility Study, US Magnesium NPL Site, Tooele County, Utah

Notes:

§	Section
ARAR	Applicable or relevant and appropriate requirement
NPL	National Priorities List
R	Rule
RCRA	Resource Conservation and Recovery Act
UAC	Utah Administrative Code
US	United States
U.S.C	United States Code